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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,171	12/21/2001	Yau Wei Lucas Hui	851663.430USPC	1982

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Seed Intellectual Property Law Group Suite 6300 701 5th Avenue Seattle, WA 98104-7092	RAO, ANAND SHASHIKANT

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DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/914,171	HUI ET AL.
		Examiner	Art Unit	
		Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,2,9,10,15,16,18-21 and 23-36* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1,2,9,10,15,16 and 23-36* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All b)☐ Some * c)☐ None of:
         1.☐ Certified copies of the priority documents have been received.
         2.☐ Certified copies of the priority documents have been received in Application No. _____ .
         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____ .
4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 3/20/06 has been entered.

2.   Applicant's arguments with respect to claims 1-2, 9-10, 15-16, 18-21, 23-36 as filed on

3/20/06 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1-2, 9-10, 26-27, and 29-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Martin et al., (hereinafter referred to as "Martin") in view of Polit et al,

(hereinafter referred to as "Polit")

         Martin a method of processing video data to detect field characteristics of the data

(Martin: figures 2-3), said data having a plurality of fields, comprising: calculating a first

difference value as a difference between pixels of a first field and pixels of a second field

(Martin: column 2, lines 24-36); calculating a second difference value between the pixels of said

first field and the pixels of a third field (Martin: column 2, lines 11-23); calculating a ratio

(Martin: column 3, lines 33-35); comparing said ratio with a threshold (Martin: column 3, lines

36-40); determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to third field based on said steps of calculating (Martin: column 3, lines

50-67; column 4, lines 1-40), as in claims 1-2. However, Martin fails to disclose that the first

difference value is generated from a first field that is successive to said second field, that the

second difference value is generated from a third field that is successive to said first field, and

that the ratio is calculated between said first and second difference values, as in the claims. Polit

discloses generating a first difference value from a first field that is successive to said second

field (Polit: column 3, lines 55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first

field"), generating a second difference value from a third field that is successive to said first field

(Polit: column 3, lines 55-67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"),

and that the ratio is calculated between said first and second difference values (Polit: column 5,

lines 1-15) in order to get a more accurate measurement of characteristics in a video sequence

(Polit: column 5, lines 15-30: "fading factor"). Accordingly, given this teaching it would have

been obvious for one of ordinary skill in the art to incorporate the Polit teaching into the Martin

method by having Martin generate first and second difference values as shown by Polit into the

Martin method, and use the generated ratio be used by the determining step of Martin since that

generated ratio would provide a more accurate measurement of characteristics in a video

sequence. The Martin method, now incorporating the first and second difference values as shown

by Polit, has all of the features of claims 1-2.

Martin discloses an apparatus of processing video data to detect field characteristics of

the data, said data having a plurality of fields (Martin: figure 1), comprising: a difference value

calculating means for calculating a first difference value as a difference between pixels of a first

field and pixels of a second field (Martin: column 2, lines 24-36), and calculating a second

difference value between the pixels of said first field and the pixels of a third field (Martin:

column 2, lines 11-23); dividing means for calculating a ratio (Martin: column 3, lines 33-35)

and a comparator means for comparing said ratio with a threshold (Martin: column 3, lines 36-

40) and determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to said comparison (Martin: column 3, lines 50-67; column 4, lines 1-

40), as in claims 9-10. However, Martin fails to disclose that the first difference value is

generated from a first field that is successive to said second field, that the second difference

value is generated from a third field that is successive to said first field, and that the ratio is

calculated between said first and second difference values, as in the claims. Polit discloses

generating a first difference value from a first field that is successive to said second field (Polit:

column 3, lines 55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first field"),

generating a second difference value from a third field that is successive to said first field (Polit:

column 3, lines 55-67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"), and that

the ratio is calculated between said first and second difference values (Polit: column 5, lines 1-

15) in order to get a more accurate measurement of characteristics in a video sequence (Polit:

column 5, lines 15-30: "fading factor"). Accordingly, given this teaching it would have been

obvious for one of ordinary skill in the art to incorporate the Polit teaching into the Martin

apparatus by having Martin generate first and second difference values as shown by Polit into the

Martin apparatus, and use the generated ratio be used by the determining step of Martin since

that generated ratio would provide a more accurate measurement of characteristics in a video

sequence. The Martin apparatus, now incorporating the first and second difference values as

shown by Polit, has all of the features of claims 9-10.

Regarding claim 26, the Martin method, now incorporating the first and second

difference values as shown by Polit, teaches verifying whether a scene change has occurred

(Polit: column 3, lines 3-40), as in the claim.

Martin a method of processing video data to detect field characteristics of the data

(Martin: figures 2-3), said data having a plurality of fields, comprising: calculating a first

difference value as a difference between pixels of a first field and pixels of a second field

(Martin: column 2, lines 24-36); calculating a second difference value between the pixels of said

first field and the pixels of a third field (Martin: column 2, lines 11-23); calculating a ratio

(Martin: column 3, lines 33-35); comparing said ratio with a threshold (Martin: column 3, lines

36-40); determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to third field based on said steps of calculating (Martin: column 3, lines

50-67; column 4, lines 1-40), as in claim 27. However, Martin fails to disclose that the first

difference value is generated from a first field that is successive to said second field, that the

second difference value is generated from a third field that is successive to said first field, and

that the ratio is calculated between said first and second difference values, teaches verifying

whether a scene change has occurred, as in the claims. Polit discloses generating a first

difference value from a first field that is successive to said second field (Polit: column 3, lines

55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first field"), generating a second

difference value from a third field that is successive to said first field (Polit: column 3, lines 55-67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"), and that the ratio is calculated between said first and second difference values (Polit: column 5, lines 1-15), and verifying whether a scene change has occurred (Polit: column 3, lines 3-40) in order to get a more accurate measurement of characteristics in a video sequence (Polit: column 5, lines 15-30: "fading factor"). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Polit teaching into the Martin method by having Martin generate first and second difference values as shown by Polit into the Martin method, and use the generated ratio be used by the determining step of Martin since that generated ratio would provide a more accurate measurement of characteristics in a video sequence. The Martin method, now incorporating the first and second difference values as shown by Polit, has all of the features of claim 27.

Regarding claims 29-30, the Martin method, now incorporating the first and second difference values as shown by Polit, teaches of the groupings as described in claims 29 and 30 (Martin: column 4, lines 5-66), as in the claims.

5.   Claims 15-16, 18-21, 23-25, 28, 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al., (hereinafter referred to as "Martin") in view of Polit et al., (hereinafter referred to as "Polit"), and further in view of Roeder et al., (hereinafter referred to as "Roeder").

Martin discloses an apparatus of processing video data to detect field characteristics of the data, said data having a plurality of fields (Martin: figure 1), comprising: a difference value calculating means for calculating a first difference value as a difference between pixels of a first

field and pixels of a second field (Martin: column 2, lines 24-36), and calculating a second

difference value between the pixels of said first field and the pixels of a third field (Martin:

column 2, lines 11-23); dividing means for calculating a ratio (Martin: column 3, lines 33-35)

and a comparator means for comparing said ratio with a threshold (Martin: column 3, lines 36-

40) and determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to said comparison (Martin: column 3, lines 50-67; column 4, lines 1-

40), as in claim 15. However, Martin fails to disclose that the first difference value is generated

from a first field that is successive to said second field, that the second difference value is

generated from a third field that is successive to said first field, that the ratio is calculated

between said first and second difference values, a first subtractor receiving a pixel of said first

field and a first pixel of said second field, a second subtractor that receives a first pixel of first

field and a second pixel of a second field and calculates the difference; and a comparator selects

the smaller of the pixel differences and accumulates them, as in claim 15. Polit discloses

generating a first difference value from a first field that is successive to said second field (Polit:

column 3, lines 55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first field"),

generating a second difference value from a third field that is successive to said first field (Polit:

column 3, lines 55-67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"), and that

the ratio is calculated between said first and second difference values (Polit: column 5, lines 1-

15) in order to get a more accurate measurement of characteristics in a video sequence (Polit:

column 5, lines 15-30: "fading factor"). Accordingly, given this teaching it would have been

obvious for one of ordinary skill in the art to incorporate the Polit teaching into the Martin

apparatus by having Martin generate first and second difference values as shown by Polit into the

Martin apparatus, and use the generated ratio be used by the determining step of Martin since

that generated ratio would provide a more accurate measurement of characteristics in a video

sequence. The Martin apparatus, now incorporating the first and second difference values as

shown by Polit, has a majority of the features of claim 15. However, the Martin-Polit apparatus

does not specifically teach of a first subtractor receiving a pixel of said first field and a first pixel

of said second field, a second subtractor that receives a first pixel of first field and a second pixel

of a second field and calculates the difference; and a comparator selects the smaller of the pixel

differences and accumulates them. However, Roeder does (Roeder: figures 1A-1D; column 4,

lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56). It would have been obvious to one of

ordinary skill in the art at the time of the invention to compare the first pixel of the first field

with the rest of the pixels of a second field in order to more accurately find the pixels with the

most motion, which would allow for more accurate compression and display. The Martin

apparatus, now incorporating the first and second difference values as shown by Polit and the

Roeder first and second subtractors and comparator, has all of the features of claim 15.

As for claim 16, the Martin apparatus, now incorporating the first and second difference

values as shown by Polit and the Roeder first and second subtractors and comparator, addresses

most of the limitations of the claim have been discussed in the above rejection of claim 15, but

does not specifically teach of setting to zero pixel differences that are less than a threshold.

However, it is considered obvious to one of ordinary skill in the art at the time of the invention

that noise must be accounted for and therefore zeroing the difference where noise is detected so

that false values are not used in the compression system, Official Notice. Also a general teaching

can be found in the reference (Roeder: column 1 , lines 52-58), as in the claim.

Martin discloses an apparatus of processing video data to detect field characteristics of

the data, said data having a plurality of fields (Martin: figure 1), comprising: a difference value

calculating means for calculating a first difference value as a difference between pixels of a first

field and pixels of a second field (Martin: column 2, lines 24-36), and calculating a second

difference value between the pixels of said first field and the pixels of a third field (Martin:

column 2, lines 11-23); dividing means for calculating a ratio (Martin: column 3, lines 33-35)

and a comparator means for comparing said ratio with a threshold (Martin: column 3, lines 36-

40) and determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to said comparison (Martin: column 3, lines 50-67; column 4, lines 1-

40), a first and second memory (Martin: figure 1), as in claims 18-20. However, Martin fails to

disclose that the first difference value is generated from a first field that is successive to said

second field, that the second difference value is generated from a third field that is successive to

said first field, that the ratio is calculated between said first and second difference values, and a

moving pixel counter, as in claim 18. Polit discloses generating a first difference value from a

first field that is successive to said second field (Polit: column 3, lines 55-67; column 4, lines 1-

20: $DIFF_{1-2}$ "where frame 2 is the first field"), generating a second difference value from a third

field that is successive to said first field (Polit: column 3, lines 55-67; column 4, lines 1-20:

$DIFF_{2-3}$ "where frame 2 is the first field"), and that the ratio is calculated between said first and

second difference values (Polit: column 5, lines 1-15) in order to get a more accurate

measurement of characteristics in a video sequence (Polit: column 5, lines 15-30: "fading

factor"). Accordingly, given this teaching it would have been obvious for one of ordinary skill in

the art to incorporate the Polit teaching into the Martin apparatus by having Martin generate first

and second difference values as shown by Polit into the Martin apparatus, and use the generated

ratio be used by the determining step of Martin since that generated ratio would provide a more

accurate measurement of characteristics in a video sequence. The Martin apparatus, now

incorporating the first and second difference values as shown by Polit, has a majority of the

features of claims 18-20. However, the Martin-Polit apparatus does not specifically teach of does

not specifically teach of a moving pixel counter. However, Roeder does (Roeder: figure 4 as

combined with figure 8 will be the equivalent of the moving pixel counter; column 6, lines 53-

68; column 7, lines 1-51). It would have been obvious to one of ordinary skill in the art at the

time of the invention to combine Roeder's motion detector within Martin's interlaced field

detector of the Martin-Polit apparatus in order to have the most accurate results since Roeder's

motion detector will detect all motion occurrences. The Martin apparatus, now incorporating the

first and second difference values as shown by Polit and the Roeder motion detector, has all of

the features of claims 18-20.

Regarding claim 21, the Martin apparatus, now incorporating the first and second

difference values as shown by Polit and the Roeder motion detector, teaches of the step of

determining whether or not there has been a scene change between said first and third fields, at

least in part based on said output of said accumulator means (Martin: column 4, Lines 41-57), as

in the claim.

Martin a method of processing video data to detect field characteristics of the data

(Martin: figures 2-3), said data having a plurality of fields, comprising: calculating a first

difference value as a difference between pixels of a first field and pixels of a second field

(Martin: column 2, lines 24-36); calculating a second difference value between the pixels of said

first field and the pixels of a third field (Martin: column 2, lines 11-23); calculating a ratio

(Martin: column 3, lines 33-35); comparing said ratio with a threshold (Martin: column 3, lines

36-40); determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to third field based on said steps of calculating (Martin: column 3, lines

50-67; column 4, lines 1-40), as in claim 23. However, Martin fails to disclose that the first

difference value is generated from a first field that is successive to said second field, that the

second difference value is generated from a third field that is successive to said first field, and

that the ratio is calculated between said first and second difference values, calculating pixel

differences between the pixel of the first field and two pixels of the second field, selecting a

smaller difference between said pixel differences, accumulating said smaller pixel difference, as

in claim 23. Polit discloses generating a first difference value from a first field that is successive

to said second field (Polit: column 3, lines 55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2

is the first field"), generating a second difference value from a third field that is successive to

said first field (Polit: column 3, lines 55-67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the

first field"), and that the ratio is calculated between said first and second difference values (Polit:

column 5, lines 1-15) in order to get a more accurate measurement of characteristics in a video

sequence (Polit: column 5, lines 15-30: "fading factor"). However, the Martin-Polit apparatus

does not specifically teach of calculating pixel differences between the pixel of the first field and

two pixels of the second field, selecting a smaller difference between said pixel differences, and

accumulating said smaller pixel difference. However, Roeder does (Roeder: figures 1A-1D;

column 4, lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56). It would have been obvious

to one of ordinary skill in the art at the time of the invention to compare the first pixel of the first

field with the rest of the pixels of a second field in order to more accurately find the pixels with the most motion, which would allow for more accurate compression and display. The Martin method, now incorporating the first and second difference values as shown by Polit and the Roeder calculating, selecting, and accumulating steps, has all of the features of claim 23.

As for claim 24, the Martin method, now incorporating the first and second difference values as shown by Polit and the Roeder calculating, selecting, and accumulating steps, has addresses most of the limitations of the claim have been discussed in the above rejection of claim 23, but does not specifically teach of setting to zero pixel differences that are less than a threshold. However, it is considered obvious to one of ordinary skill in the art at the time of the invention that noise must be accounted for and therefore zeroing the difference where noise is detected so that false values are not used in the compression system, Official Notice. Also a general teaching can be found in the reference (Roeder: column 1 , lines 52-58), as in the claim.

Martin a method of processing video data to detect field characteristics of the data (Martin: figures 2-3), said data having a plurality of fields, comprising: calculating a first difference value as a difference between pixels of a first field and pixels of a second field (Martin: column 2, lines 24-36); calculating a second difference value between the pixels of said first field and the pixels of a third field (Martin: column 2, lines 11-23); calculating a ratio (Martin: column 3, lines 33-35); comparing said ratio with a threshold (Martin: column 3, lines 36-40); determining whether said first field is an interlaced field or a progressive field (i.e. non-interlaced) with respect to third field based on said steps of calculating (Martin: column 3, lines 50-67; column 4, lines 1-40), as in claim 25. However, Martin fails to disclose that the first difference value is generated from a first field that is successive to said second field, that the

second difference value is generated from a third field that is successive to said first field, and

that the ratio is calculated between said first and second difference values, calculating the

number of moving pixels between said second and third fields wherein the determining step

includes determining that said first field is an interlaced field if said number is lower than a

moving pixel threshold and that said first and third fields are progressive if said number is not

lower that the moving pixel threshold, as in claim 25. Polit discloses generating a first difference

value from a first field that is successive to said second field (Polit: column 3, lines 55-67;

column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first field"), generating a second difference

value from a third field that is successive to said first field (Polit: column 3, lines 55-67; column

4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"), and that the ratio is calculated between

said first and second difference values (Polit: column 5, lines 1-15) in order to get a more

accurate measurement of characteristics in a video sequence (Polit: column 5, lines 15-30:

"fading factor"). However, the Martin-Polit apparatus does not specifically teach of calculating

the number of moving pixels between said second and third fields wherein the determining step

includes determining that said first field is an interlaced field if said number is lower than a

moving pixel threshold and that said first and third fields are progressive if said number is not

lower that the moving pixel threshold. However, Roeder does (Roeder: figures 1A-1D; column 4,

lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56). It would have been obvious to one of

ordinary skill in the art at the time of the invention to calculate the number of moving pixels

between said second and third fields wherein a determining step includes determining that said

first field is an interlaced field if said number is lower than a moving pixel threshold and that

said first and third fields are progressive if said number is not lower that the moving pixel

threshold, which would allow for more accurate compression and display. The Martin method, now incorporating the first and second difference values as shown by Polit and the Roeder moving pixel counting step, has all of the features of claim 25.

The Martin method, now incorporating the first and second difference values as shown by Polit, has a majority of the features of claim 28, but does not specifically teach detecting a moving region by calculating the number of moving pixels between said second and third fields wherein the determining step includes determining that said first field is an interlaced field if said number is lower than a moving pixel threshold and that said first and third fields are progressive if said number is not lower that the moving pixel threshold. However, Roeder does (Roeder: figures 1A-1D; column 4, lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to calculate the number of moving pixels between said second and third fields wherein a determining step includes determining that said first field is an interlaced field if said number is lower than a moving pixel threshold and that said first and third fields are progressive if said number is not lower that the moving pixel threshold, which would allow for more accurate compression and display. The Martin method, now incorporating the first and second difference values as shown by Polit and the Roeder moving pixel counting step, has all of the features of claim 28.

Martin a method of processing video data to detect field characteristics of the data (Martin: figures 2-3), said data having a plurality of fields, comprising: calculating a first difference value as a difference between pixels of a first field and pixels of a second field (Martin: column 2, lines 24-36); calculating a second difference value between the pixels of said first field and the pixels of a third field (Martin: column 2, lines 11-23); calculating a ratio

(Martin: column 3, lines 33-35); comparing said ratio with a threshold (Martin: column 3, lines

36-40); determining whether said first field is an interlaced field or a progressive field (i.e. non-

interlaced) with respect to third field based on said steps of calculating (Martin: column 3, lines

50-67; column 4, lines 1-40), as in claim 31. However, Martin fails to disclose that the first

difference value is generated from a first field that is successive to said second field, that the

second difference value is generated from a third field that is successive to said first field, and

that the ratio is calculated between said first and second difference values, teaches verifying

whether a scene change has occurred, as in the claims. Polit discloses generating a first

difference value from a first field that is successive to said second field (Polit: column 3, lines

55-67; column 4, lines 1-20: $DIFF_{1-2}$ "where frame 2 is the first field"), generating a second

difference value from a third field that is successive to said first field (Polit: column 3, lines 55-

67; column 4, lines 1-20: $DIFF_{2-3}$ "where frame 2 is the first field"), and that the ratio is

calculated between said first and second difference values (Polit: column 5, lines 1-15), and

verifying whether a scene change has occurred (Polit: column 3, lines 3-40) in order to get a

more accurate measurement of characteristics in a video sequence (Polit: column 5, lines 15-30:

"fading factor"). Accordingly, given this teaching it would have been obvious for one of ordinary

skill in the art to incorporate the Polit teaching into the Martin method by having Martin generate

first and second difference values as shown by Polit into the Martin method, and use the

generated ratio be used by the determining step of Martin since that generated ratio would

provide a more accurate measurement of characteristics in a video sequence. The Martin method,

now incorporating the first and second difference values as shown by Polit, has a majority of the

features of claim 31, but does not specifically teach detecting a moving region by calculating the

number of moving pixels between said second and third fields wherein the determining step

includes determining that said first field is an interlaced field if said number is lower than a

moving pixel threshold and that said first and third fields are progressive if said number is not

lower that the moving pixel threshold. However, Roeder does (Roeder: figures 1A-1D; column 4,

lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56). It would have been obvious to one of

ordinary skill in the art at the time of the invention to calculate the number of moving pixels

between said second and third fields wherein a determining step includes determining that said

first field is an interlaced field if said number is lower than a moving pixel threshold and that

said first and third fields are progressive if said number is not lower that the moving pixel

threshold, which would allow for more accurate compression and display. The Martin method,

now incorporating the first and second difference values as shown by Polit and the Roeder

moving pixel counting step, has all of the features of claim 31.

Regarding claims 32-33, the Martin method, now incorporating the first and second

difference values as shown by Polit and the Roeder moving pixel counting step, discloses

calculating a ratio between the first and second difference value (Polit: column 5, line 1-10); and

comparing the ratio to a threshold, wherein determining whether the first field is an interlaced

field or a progressive field (Martin: column 3, lines 55-67; column 4, lines 1-20), as in the

claims.

Regarding claim 34, the Martin method, now incorporating the first and second

difference values as shown by Polit and the Roeder moving pixel counting step, has calculating

pixel differences between the pixel of the first field and two pixels of the second field, selecting a

smaller difference between said pixel differences, and accumulating said smaller pixel difference

(Roeder: figures 1A-1D; column 4, lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56), as in the claim.

Regarding claims 35-36, the Martin method, now incorporating the first and second difference values as shown by Polit and the Roeder moving pixel counting step, has detecting a moving region by calculating the number of moving pixels between said second and third fields wherein the determining step includes determining that said first field is an interlaced field if said number is lower than a moving pixel threshold and that said first and third fields are progressive if said number is not lower that the moving pixel threshold (Roeder: figures 1A-1D; column 4, lines 20- 68; column 5, lines 1-8; column 2, Lines 46-56), as in the claim.

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2621

asr
April 24, 2006

ANDY RAO
PRIMARY EXAMINER